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SUBJECT: South Africa: Minerals and Energy Newsletter "THE ASSAY" -
Issue 8, August 2009

This cable is not for Internet distribution.

11. (SBU) Introduction: The purpose of this newsletter, initiated in January 2004, is to highlight minerals and energy developments in South Africa. This includes trade and investment as well as supply. South Africa hosts world-class deposits of gold, diamonds, platinum group metals, chromium, zinc, titanium, vanadium, iron, manganese, antimony, vermiculite, zircon, alumino-silicates, fluorspar and phosphate rock, and is a major exporter of steam coal. South Africa is also a leading producer and exporter of ferroalloys of chromium, vanadium, and manganese. The information contained in the newsletters is based on public sources and does not reflect the views of the United States Government. End introduction.

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HOT NEWS

13. (SBU) South African gold and non-gold production was lower by 12.2% and 7.3%, respectively, in June 2009 compared to June 2008, according to Statistics South Africa. Total mining production for the second quarter of 2009 decreased by 10.7% compared with the second quarter of 2008, but total mining production for the second quarter of 2009 increased by 4.5% compared with the previous quarter. Platinum group metal (PGM) production was up by 4% and was the main contributor to this increase. According to the latest mining production and sales data, total mineral sales decreased by 33.1% to \$2.25 billion in May 2009 when compared with the same month in 2008.

14. (SBU) Gold sales at \$500 million were up 3.5% year-on-year in May, while non-gold sales fell 39% to \$1.75 billion in the same month. The total adjusted value of mineral sales at current prices for the three months ended May 2009 reflected a decrease of 0.8% compared with the previous three months. This was a result of a decrease of 2.5% in the sale of non-gold minerals. The estimated total value of mineral sales at current prices for the three months ended May 2009 decreased by 24.1% compared with the three months to end May 2008. Statistics South Africa said major contributors to this decrease were PGMs, manganese ore, coal, and other non-metallic minerals. Iron ore and gold were the only major minerals that made positive contributions to sales.

ENERGY
QENERGY

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Licenses for U.S. Forest Gas Project

15. (SBU) Forest Oil Commercial Director John Langhus announced at the end of August that the Department of Mineral Resources (DMR) had granted Forest and its partners a 30-year Production Right for Block 2A of the Ibhubesi Gas Project. The Ibhubesi partners are U.S. firm Forest Exploration International (52.8%), state oil company PetroSA (24%), and U.S. firm Anschutz Overseas (22.2%). The license covers the development of a natural gas field off the west coast of South Africa. The area comprising 5,000 square kilometers is situated 350 kilometers northwest of Cape Town and 100 kilometers offshore from the coast. Exploration will be in four phases and will involve the sinking of 99 wells over a period of 20 years. The expectation is that there will be sufficient gas to power a 700 megawatt station, which would provide about 35% of the energy needs of the Western Cape. The western region of South Africa has no energy resources or power generation facilities, with the exception of the 1,800 megawatt Koeberg nuclear plant, and must import the balance of its needs from coal-fired plants in the rest of the country.

16. (SBU) Ibhubesi was initially discovered by Soekor, the previous government-owned oil exploration company, which has been merged into PetroSA. The Ibhubesi partners began exploring the field 1998 and have invested over \$100 million to date. An estimated further capital spend of \$3-4 billion will be required over the period of the Production Right. The marketing plan is to deliver gas to industries along the west coast down to Cape Town in the south. Direct employment is estimated to be 115 permanent jobs and about twice that number during construction. Indirectly, it will provide energy to fuel thousands of new jobs along the west coast. At a signing ceremony held in Cape Town, speakers included: Petroleum Agency of South Africa (PASA) CEO Mthozami Xiphu representing the National Government; the Minister for Economic Development, Trade and Tourism Alan Winde representing the Provincial Government; and Wesgro Head of Investment Promotion, Rameez Johaar. Forest's John Langhus and COO JC Ridens represented Ibhubesi Partners and Dr. Alberta Mayberry, American Consul General in Cape Town, represented the U.S. government. Dr. Mayberry said: "the agreement is an example of what President Barack Obama would like to see, namely

economic development partnerships with South Africa and the whole of Africa."

SA Expertise for Angola Oil

17. (SBU) South African President Jacob Zuma visited Angola in mid-August on his first official state visit, together with the largest business-related delegation to Angola since South Africa's 1994 democratic elections. Frost and Sullivan's African program manager for energy and power supplies said South Africa, an oil-dependent country, imports much of its oil from Iran. Friendly ties with Angola would be of mutual benefit to both countries and possibly ensure a secure supply of oil for South Africa. South Africa has engineering skills and expertise in project management and financial systems, which are needed in Angola and could be applied in exchange for oil. This represents an opportunity for South African companies and a major deal with Angola would boost the South African economy. An agreement between the countries would open up new markets for South African companies and provide access to some of Angola's minerals and oil.

18. (SBU) Angola is also China's biggest supplier of oil in exchange for which it has given Angola financial aid and expertise. China's Sinohydro Corporation's spokesperson says the company has invested \$2.4 billion in Angola since the end of the civil war in 2002 to rebuild infrastructure. It is currently building new hospitals, irrigation canals, and other infrastructure aimed at improving the lives of ordinary Angolans. Frost views China as a competitor to

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South Africa, but says the rebuilding of Angola needs more help than China can deliver on its own. However, corruption is a major stumbling block for future development. Angola's total oil exports in October are set to hit their highest level this year at around 1.90 million barrels per day (bpd) of crude, up 50,000 bpd from September and well above its implied OPEC target. Angola's production is higher than its exports as it has a refinery able to process 60,000 bpd. Its crude oil exports approached 2.0 million bpd in the fourth quarter of 2008, but fell to 1.60 million bpd in February 2009, according to Reuters data.

Eskom's Plants on Track but Delayed

19. (SBU) Power utility Eskom's new Kusile coal-fired power station will be commissioned in June 2013, despite some teething problems, according to civil engineering contractor Stefanutti Stocks. The company is leading a consortium of construction companies, which were awarded the civil works contract for the new 4,800 megawatt power station in Mpumalanga Province. The contract is worth about \$360 million. The project manager claims that some 20% of the early civil structures are complete and, given no further delays, the plant should be completed within four years, with the first unit operational in two-and-a-half years and the others commissioned at six-monthly intervals thereafter. The power station will house six 800 megawatt units and a closed cooling system. Eskom is also currently building the 4,800 megawatt Medupi power plant in Limpopo Province, which will be its first new power station in more than two decades. Medupi's first 800 megawatt unit was expected to be operational by September 2011, but is four to six months behind schedule. Similarly, commissioning of the first unit of its Ingula pumped-storage plant, on the border between the Free State and KwaZulu-Natal provinces, has been delayed by between three and four months from its initial 2012 commissioning date.

110. (SBU) Industry analysts worry that Eskom's failure to resolve its \$20 billion funding shortfall may cause it to delay any one of its three major projects, namely coal-fired Medupi and Kusile, or pump-storage Ingula -- costing a total of about \$30 billion. This would have negative implications for the country's energy-intensive industries, employment, and possibly slow its emergence from the economic recession. Eskom and the state are likely to do all they

can to avoid this happening. First power from Medupi is set for April 2012, Kusile by June 2013, and Ingula's commissioning by October 2013. Eskom says these key projects are unaffected by its cash problems. However, construction industry sources say Eskom appears to be taking longer to issue the smaller project tenders. Analysts believe there are three ways that Eskom could fund its expansions during the next five years to March 2013:
Qexpansions during the next five years to March 2013:
-- getting the National Energy Regulator to grant substantial tariff increases;
-- raising debt on local and international markets;
-- raising soft loans from the government.

All these are problematic, given the current financing environment and political sensitivities. However, Eskom's funding demands could be ameliorated by making investment in power generation attractive to private and foreign independent power producers (IPPs). This would require a realistic tariff structure and an investor-friendly fiscal, legal, and regulatory framework. The government's stated aim is to have IPPs produce 30% of new power, but under existing circumstances their contribution is unlikely to increase, despite the latest tariff increases.

----- Carbon Capture a Transitional Measure -----

¶11. (SBU) Carbon capture and storage (CCS) will be a transitional measure to bridge the gap between South Africa's reliance on fossil fuels and its greater reliance on nuclear and renewable energy forms, said South African National Energy Research Institute

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(Saneri) senior manager Tony Surridge at an Energy Efficiency conference in mid-August. He noted that it was unlikely that CCS could be implemented in South Africa without carbon trading to offset the high cost of CCS. The Clean Development Mechanism (CDM) does not accept CCS for trading, but the United Nations Framework Convention on Climate Change (UNFCCC) is dealing with this issue. South Africa is currently compiling a carbon dioxide (CO2) storage atlas using existing geological information to identify potential sites for the storage of CO2 from industrial sources that primarily use coal and is on schedule for completion by the middle of 2009. The country is also planning to implement a CO2 injection pilot project by 2016 and a demonstration plant by 2020. The atlas is being sponsored by petrochemical company Sasol, power utility Eskom, state oil company PetroSA, multi-national mining company Anglo American, and Saneri for an amount of \$250,000.

¶12. (SBU) The captured CO2 will be compressed into liquid form and injected into storage sites in deep geological formations, such as saline reservoirs, coal seams, and depleted oil and gas fields. International capture technology can be acquired, but storage potential is specific to local circumstances that must be identified and measured. Storage reservoirs are commonly associated with the sedimentary basins in which oil and gas occur. South Africa lacks these, but the onshore central basin of the Karoo Supergroup, with its substantial sedimentary formations, may offer storage opportunities. Offshore sedimentary rocks along the coastline also hold some potential for storage. The Council for Geoscience (CGS) and PetroSA intend to publish the initial assessment of storage potential in a user friendly atlas by April 2010. The atlas will illustrate the distribution and ranking of potential geological CO2 storage reservoirs, including:
-- estimated CO2 storage capacities;
-- main CO2 emission sources;
-- location of industrial hubs;
-- location of pipelines; and
-- other factors that may have a bearing on storage feasibility. This information will provide guidance for further exploration should CCS technologies be used in South Africa.

----- Promoting Renewable Energy Projects -----

¶13. (SBU) The South African Department of Energy's (DOE) Clean

Energy Division Chief Director David Mahuma said it was developing financial instruments to promote renewable energy in South Africa. Mahuma said the government recognized and accepted that there were economic barriers to the uptake of renewable energy. He mentioned a number of initiatives established by DOE to develop financial instruments, such as the recently published renewable energy feed-in-tariff (REFIT); the renewable energy finance and subsidy office (REFSO); the renewable energy market transformation (REMT) project; and the potential use of tradable renewable energy certificates.

¶14. (SBU) DOE's New and Renewable Energy Director Nomawethu Qase explained that a renewable energy policy framework was established in 2003 and was currently under review. This framework set a renewable energy contribution target of 4% of total power generation capacity, equal to about 10,000 gigawatt-hours (GWh) by 2013. Qase encouraged independent power producer (IPP) participation in meeting these targets and said there was also a role for power utility Eskom to play and that Eskom should contribute some 6,000 GWh towards the target. The criteria for selecting IPPs still needs to be clarified and will remain unclear until an integrated resource plan is completed. This would deal with plant location preferences to allow for grid stabilization and mitigate transmission losses.

Eskom Sole Purchaser of Electricity

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¶15. (SBU) State power utility Eskom has been designated the renewable energy purchasing authority (REPA), and the sole buyer of electricity. It is responsible for entering into agreements with renewable energy (RE) power generators and for payment of power purchased from them. Eskom said it is committed to shortening the time taken to conclude power purchase agreements and would also be responsible for the cost of transporting power from the place of generation to the Eskom transmission grid. Eskom Market Development Manager Yousuf Haffajee said that the challenge of connecting generators to the grid should not be underestimated. He also said a successful renewable energy program required supportive government policies and a feed-in-tariff (REFIT) that gives a fair return to both project developers and purchasers. Eskom would need to ensure that it had sufficient funds to pay for the more expensive RE. Haffajee noted that an estimated \$375 million per year would be needed to meet the 700 megawatt target for RE set for 2013 and that a large electricity price increase would be required to meet the target and costs. He noted that tariffs were already under pressure for Eskom's build programs and decisions would have to be made for additional funding schemes, beyond tariffs, and to ensure that cost recovery mechanisms were in place.

Sasol Sponsors Solar Energy Research

¶16. (SBU) Petrochemicals giant Sasol has announced a sponsorship of \$375,000 over the next five years to support solar thermal energy research by the University of Stellenbosch's Department of Mechanical and Mechatronic Engineering. The money will be used to appoint a senior researcher to lead the research effort and to purchase new equipment for the University's Solar Roof Laboratory. The funding is in addition to an investment of \$500,000 by the university to expand solar research facilities and to appoint additional staff. Senior Director of Research and Innovation Dr Therina Theron said Stellenbosch sees environmental sustainability and renewable energy as a key focus area for research and was looking forward to developing more industry partnerships in this area. The department has focused on bulk renewable solar power generation over the last 11 years. Solar thermal energy research also supports Sasol's initiative to investigate opportunities in the field of renewable energies and low-carbon electricity. Sasol has been identified as the world's single biggest point source of green house gas.

¶17. (SBU) During 2008, Sasol formed a New Energy division with the prime aim of developing business opportunities to reduce the company's green house gas footprint. Southern Africa is blessed with some of the best solar radiation in the world, which is why Sasol supports the development of solar energy technologies as a viable renewable energy source for Southern Africa within a carbon constrained future. Sasol reiterated its commitment to renewable energy research saying: "In bridging the gap towards a carbon constrained energy future, renewable energy and specifically solar energy, will play an ever increasing strategic role. We need to understand this technology environment and be ready with the technology alternatives." Stellenbosch University has established research and teaching expertise spanning a wide spectrum in renewable energy, and in particular in solar thermal energy.

MINING

Malawi's Mining Starting to Blossom

¶18. (SBU) Malawi is not generally recognized as a mining country. Nevertheless, Australia's Paladin Uranium recently started production at its \$200 million Kayelekera uranium mine. The country

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also has known resources of the aluminum-bearing mineral bauxite, and there is the prospect of it becoming a producer of niobium. Niobium is a rare ductile transition metal used in the production of steel, super alloys, and super-conductors. The South African engineering firm Thuthuka has agreed to invest \$10.6 million in a joint venture to develop the Kanyika niobium project, owned by Australian-listed Globe Metals & Mining. A bankable feasibility study is due to be completed by December 2010. Kanyika's planned production is 3,000 tons per year of niobium metal, which is expected to start in 2012. This will establish the company as the world's fourth-largest producer of ferro-niobium.

Acid Mine Drainage as Water Resource

¶19. (SBU) Watermark Global, a UK-listed company that focuses on the treatment of acid mine drainage (AMD) in South Africa, has completed verification of the mine water resource in the Witwatersrand gold basin. The resource verification, carried out by Golder Associates, has confirmed that the daily recharge into the western, central and eastern basins is 155 million liters. Watermark's subsidiary, Western Utilities Corporation, plans to produce between 50 and 70 million liters of industrial quality water per day for re-use by mines, with excess AMD being converted to potable water for sale to bulk distributors, including the state water utility Rand Water. The results of the bankable feasibility study are expected at the end of September, and the company plans to start construction by the first quarter of 2010.

Sasol to Close Phosphoric Acid Plant

¶20. (SBU) Petrochemical company Sasol has announced the possible closure of its Sasol Nitro phosphoric acid operations in Phalaborwa. The plant manufactures phosphoric acid from phosphate rock and sulfur and its profitability is determined by a combination of the prices of the feed products and sale volumes and prices of phosphoric acid on the international market. Sasol Nitro buys its phosphate rock from the neighboring state-owned Foskor mine, which increased the price to such an extent that Sasol considered shutting down its plant in 2004. According to Sasol, despite having explored a number of options, current feedstock prices and a declining phosphoric acid market have rendered the plant's ongoing operation unsustainable and the plant is projecting significant losses for

¶2009. Plant closure would affect 245 employees at the plant, and another 250 service provider employees. Sasol says it will endeavor to redeploy employees to other Sasol operations where possible. The plant was designed to produce 325,000 tons of phosphoric acid of which 100,000 tons have already been mothballed. Most of this product is used by the fertilizer industry and to produce animal feed products.

¶21. (SBU) Conversely, state-owned mining and fertilizer manufacturing company Foskor more than doubled its annual profit in 2008 from the production of phosphoric acid and phosphate fertilizer. It has said it would like to buy Sasol's phosphoric acid plant as it would form part of the group's core business. Foskor's spokesperson said that at least one earlier attempt to buy the plant had been blocked by the antitrust authorities. The Foskor plant produces phosphoric acid from phosphate rock mined at the company's adjacent mine. Foskor is spending \$150 million to expand production by 14% to 2.85 million tons of phosphate rock within the next two years as part of its growth strategy and is conducting feasibility studies to broaden its product range away from conventional fertilizer. Foskor's chief executive said a combination of record harvests and food shortages for both humans and animals fuelled the need for better crop yields, thus boosting fertilizer demand, and phosphoric acid prices almost doubled from the start of the financial year and peaked at about \$2,200 a ton in August 2009. The cost of raw materials such as sulfur and ammonia

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has increased exponentially, but the company has been able to counter some of these increases as it is one of the few vertically integrated companies in the world.

Are Fatalities in SA Deep Mines Avoidable?

¶22. (SBU) Recent mining-related deaths have once again raised the question of whether fatalities in South Africa's deep gold and platinum mines are avoidable. Some 167 deaths were recorded in 2008 and so far this year more than 100 miners have died, mainly on gold and platinum mines. While mine management now universally recognize a single death is unacceptable, the number of deaths and the fatality rate per thousand workers has steadily declined from 774 and 1.12 in 1984 to 167 and less than 0.40 in 2008, respectively. Mining journalist Brendan Ryan opines that the only way to mine at great depths without fatalities is by mechanization. Otherwise he says fatalities are inevitable. He says mine management has dedicated itself to attaining a zero fatality rate over time, but the realities of deep level mining with its generally unpredictable seismic events, pressure bursts, and falls of rock mean fatalities and accidents will occur, irrespective of management's best efforts. Ryan says Australian resource giant BHP Billiton has not ventured into platinum mining in South Africa because it concluded fatalities are inevitable.

¶23. (SBU) The answer probably lies in the combination of better mine planning and layout, safety awareness and training, changes in attitude of both miners and management focusing on safety and safe working conditions, more stringent safety regulations, and other measures, short of stopping mining altogether. The latter step would have a devastating impact on the country's economy, employment, and social stability and is therefore not an acceptable alternative, despite Gold Fields CEO's statement that if they cannot mine without fatalities they would not mine at all. Similarly, labor would not accept the loss of jobs and would probably push for nationalization of the mines, with little improvement in safety. The ultimate answer is to reduce the number of people underground and place machines in high-risk areas. The challenge is nobody has yet developed a viable mechanized mining system for the narrow ore bodies found in South African mines. Unions generally oppose mechanization because it would take away jobs -- recent attempts by Impala Platinum to bring in a safer and more productive drilling system at the mining face were opposed by workers concerned about job losses. However, Secretary General of the National Union of Mineworkers says that as long as the purpose of mechanization isn't

to reduce jobs the union is not opposed to it and they accept AngloGold Ashanti's study that to mine five kilometers below surface would require mechanization.

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State Mining Company - No Final Decision

¶24. (SBU) The South African cabinet has agreed to suspend the disposal of mining assets held by state entities, a move that may lead to the creation of a state mining company, government spokesman Themba Maseko said in early August. Maseko said at a post-cabinet briefing that the moratorium was intended to provide the minister of mineral resources adequate time to conduct and finalize an audit of mining interests held directly or indirectly by the state. The audit will enable the state to decide whether to consolidate, retain, or dispose of such interests. Maseko said it was too early to suggest the moratorium would lead to the establishment of a national mining company, an idea mulled by the ruling ANC but criticized by mining analysts as unworkable. He said there was no decision to set up a state mining company, although the review may lead government to set one up. He said state mineral assets were owned without being registered on a central data base and there was a need to decide what to do with these assets -- dispose or develop them.

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Redundant Diamond Equipment Scrapped

¶25. (SBU) Major diamond finds along Namibia's Coast at the turn of the 20th century led to a thriving diamond mining industry that stretched from the Orange River in the south to Luderitz and beyond in the north, a distance of more than 200 kilometers. Mining currently takes place along the beaches, in the surf zone, and in the sea. The largest player until 1994 was Consolidated Diamond Mines (CDM), which was wholly owned by the diamond giant De Beers. In 1994, a new agreement was concluded with the government of Namibia, resulting in the formation of the Namdeb Diamond Corp, which is jointly owned by the Namibian government and De Beers. Given the high intrinsic value of Namibian diamonds, all operations are governed by strict security protocols for mining, processing, handling, and transporting of diamonds. One security measure is that all equipment going into any diamond mining area, albeit a dozer, pick-up truck, or excavator, never comes out again. At the end of its useful life it is dumped on a local scrap heap. Over more than 60 years of mining, these scrap heaps have accumulated tens of thousands of tons of valuable scrap metal.

¶26. (SBU) Namdeb has taken the decision to clear these scrap heaps for environmental and practical reasons, and has given Cape Town based SA Metal company the contract to recycle and process the materials on site prior to their release from secured areas. Barloworld Equipment Namibia and Caterpillar have supplied the shearing equipment to cut up the scrap and training for SA Metal operators in the use of this equipment. According to SA Metal, the contract commenced in July 2008, is open-ended, is expected last for about three years, and will yield some 250,000 tons of saleable metal. Because of the corrosive nature of the west coast, any pre-1960 metal will have rusted away. Namdeb's scrap metal stockpile represents one of the world's largest and the scale of the operation is so big that the site is clearly visible from space. Everything was mixed together during dumping operations, so the metal and non-metal materials must be separated and the metals sorted into elements such as copper, steel, lead, and zinc. The material is sourced from a main and an estimated 15 satellite mines spread over a distance of some 110 kilometers up and down the coast.

GIPS